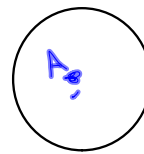


Ch 10 Circles

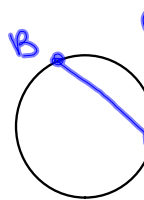
10-1 Circles and Circumference

10-2 Angles and Arcs



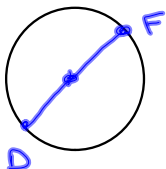
Circle--the set of all points in a plane equidistant from a given point

Center--given point



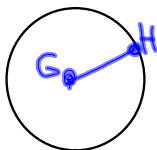
Chord--segment whose endpoints are on the circle

\overline{BC} is a chord



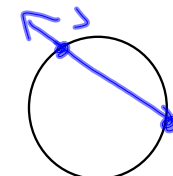
Diameter--chord that passes through the center

\overline{DF}



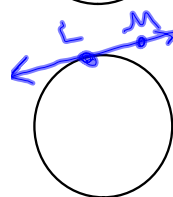
Radius--segment whose endpoints are the center and a point on the circle

\overline{GH}



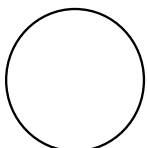
Secant--line that contains a chord

\overleftrightarrow{JK}



Tangent--line that intersects the circle in exactly one point

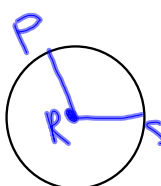
\overleftrightarrow{LM}



Circumference--distance around

$$C = 2\pi r$$

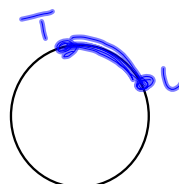
$$C = \pi d \quad \pi = \frac{C}{d}$$



Central Angle--Angle whose vertex is the center and whose sides are radii.

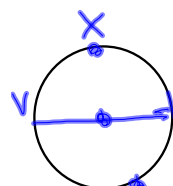
$\angle PQR$ intercepts \overline{PS}

Central angle intercepts an arc.



Arc--part of the circle

\overline{TU}



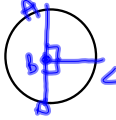
Minor Arc-- $< 180^\circ$ 2 letters

Major Arc-- $> 180^\circ$ 3 letters

Semicircle-- 180° 3 letters

\overline{VXW}

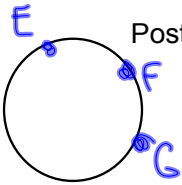
Measure of the central angle = measure of the intercepted arc



$$m\angle ABC = 90^\circ$$

$$m\widehat{AC} = 90^\circ$$

Theorem 10.1--In the same or congruent circles, 2 arcs are congruent iff their central angles are congruent $\widehat{AC} \cong \widehat{CD}$

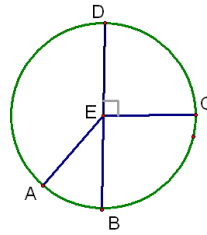


Postulate 10.1--Arc Addition Postulate--

$$m\widehat{EG} = m\widehat{EF} + m\widehat{FG}$$

$m \rightarrow \text{degrees}$
 $no\ m \rightarrow \text{length}$
Arc length

$$l = \frac{A}{360} \cdot C$$

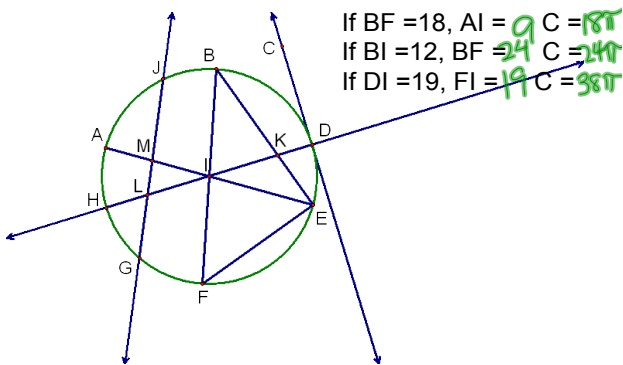


DB is the diameter
DB = 10

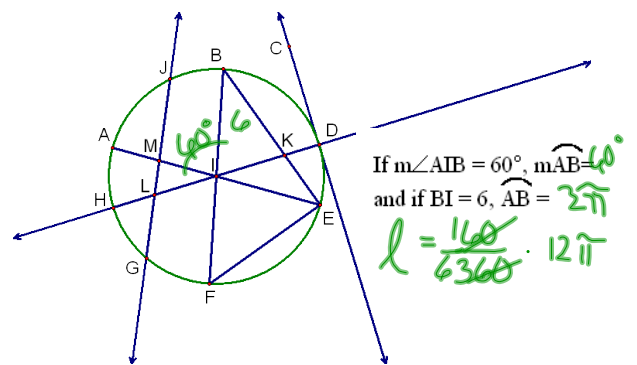
$$C = 10\pi$$

$$\widehat{DC} = \frac{90}{360} \cdot 10\pi = \frac{5\pi}{2}$$

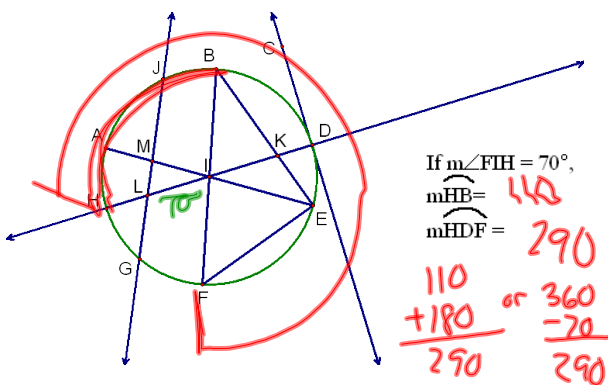
$$\widehat{DCB} = \frac{1}{2} 10\pi = 5\pi$$



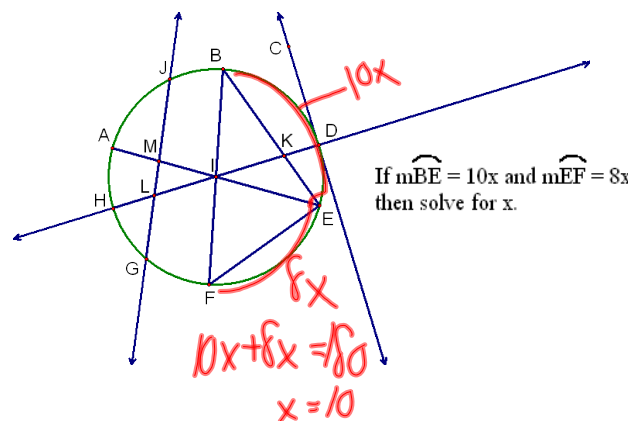
If BF = 18, AI = 9 C = 18π
If BI = 12, BF = 24 C = 24π
If DI = 19, FI = 19 C = 38π



If $m\angle AIB = 60^\circ$, $m\widehat{AB} = 40^\circ$
and if BI = 6, $\widehat{AB} = 2\pi$
 $l = \frac{160}{6360} \cdot 12\pi$



If $m\angle FIH = 70^\circ$,
 $m\widehat{HB} = 140$
 $m\widehat{HDF} = 290$
 $\frac{110}{290} \text{ or } \frac{360}{290}$
 $\frac{+180}{290}$
 $\frac{-20}{290}$



If $m\widehat{BE} = 10x$ and $m\widehat{EF} = 8x$
then solve for x.

$$10x + 8x = 180$$

$$x = 10$$

